

**REMARKS**

Claims 1-18 are pending in this application. Claim 1 is the sole independent claim. Claims 1, 4 and 15 are amended. Claims 19-36 are added. Therefore, claims 1-36 are pending. Reconsideration and allowance of the present application are respectfully requested.

**Claim Rejections Under 35 U.S.C. § 103**

Claims 1-4, 7 and 12-18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 7,158,784 to Majidi-Ahy (“Majidi-Ahy”) in view of U.S. Patent No. 6,836,515 to Kay et al. (hereinafter “Kay”) in further view of U.S. Patent No. 6,728,514 to Bandeira et al. (hereinafter “Bandeira”). This rejection is respectfully traversed.

Claim 1, upon which claims 2-18 depend, recites “a mesh access network, comprising: at least one base-station comprising a plurality of sectors; each sector comprising of a plurality of terminal nodes, said terminal nodes comprising both indoor terminal nodes and outdoor terminal nodes, and comprising a plurality of outdoor repeaters, wherein each of the plurality of terminal nodes comprises an antenna; wherein said nodes in each sector are arranged in a tree structure starting from said base-section; wherein said base-station sectors use different frequency bands that are located in alternate sectors of said base-station; and a module for interference management and sector reuse comprising network management of frequency, time, and directionality.”

As outlined below, Majidi-Ahy, Kay and Bandeira do not teach or suggest the combination of elements recited in claims 1-4, 7 and 12-18.

Majidi-Ahy discloses a system for including a communication cell having a base station controller and at least one set of customer premises equipment. The customer premises equipment is disposed within a sector of the cell, and communication between the base station controller and the customer premises equipment is controlled by the base station controller is so as to prevent interference between multiple sets of customer premises equipment. When customer premises equipment is subject to relatively larger amounts of interference or noise, one or more access points are disposed within the sector, so as to propagate or route communication between the base station controller and one or more sets of customer premises equipment. The

access points may range in complexity from simple reflectors, to repeaters, to routing devices operative within the cell.

Bandeira discloses scalable network topologies and access methods (e.g., medium access control) using frequency, time, and directional diversity. Wireless broadband data access is provided to and from a plurality of locations distributed randomly over a large geographic area. Various network topologies and access methods are provided, which allow numerous transmitting instruments to co-exist without loss of the communication link or information (e.g., data packets) due to collisions or conflicts within the network or system. Network nodes only require two independent communication channels and may combine the use of frequency and directional diversity to allow multiple nodes to transmit simultaneously in the same geographical area without collisions. The network does not require a backbone to be deployed, with all traffic capable of being forwarded by the wireless apparatus, through multiple hops, if necessary, to reach its intended destination. Backbone point-to-point links can be added at a later time to scale-up the network, if desired, but are not needed until the total available capacity has been utilized. See at least Col. 2, line 63-Col. 3, line 34 of Bandeira.

Kay discloses a point to multipoint system that includes hub sites each having multi-mode hub terminals and multiple multi-mode remote terminals. The hub site includes one or more hub terminals for each sector, depending on multiple channels and location of the subscriber premises containing the remote terminals. Each hub terminal supports one subchannel of the channel. Each subchannel is a subset of the total frequency bandwidth or channel bandwidth. Each hub terminal is a sector radio used to communicate with the remote terminals within its particular sector. Each remote terminal includes an indoor unit, service specific interface modules, an outdoor unit, an intrafacility link, and a communications link. The hub terminals of the hub site include an outdoor unit, a hub indoor unit, an intrafacility link, among other features.

Applicants submit that the combination of Majidi-Ahy, Bandeira and Kay does not teach or suggest the combination of elements recited in claims 1-4, 7 and 12-18 and newly added claims 19-36. Independent claims 1 and 19, in part, recite “each sector comprising of a plurality of terminal nodes, said terminal nodes comprising both indoor terminal nodes and outdoor terminal nodes, and comprising a plurality of outdoor repeaters, wherein each of the plurality of

terminal nodes comprises an antenna.” The Office Action acknowledged that Majidi-Ahy does not teach indoor terminal nodes and outdoor terminal nodes. Therefore, the Office Action cited Kay to cure these deficiencies.

Kay discloses an indoor unit and an outdoor unit of remote terminals and hub terminals. Kay discloses that the indoor units or “channel processing units” of the remote terminals and hub terminals multiplex traffic and support multiple transport mode signals using multiple modulation modes. See at least Col. 11, lines 1-23. The outdoor units or “transceiver units” communicate with its respective indoor unit and the hub terminal or remote terminal, depending on whether the outdoor unit is in the remote terminal or the hub terminal. See Col. 12, lines 1-10 and Col. 14, lines 4-45 of Kay. The indoor and outdoor units of Kay are not the same as the indoor terminal nodes and outdoor terminal nodes, recited in claim 1. As noted above, the indoor units of Kay are merely “channel processing units” and are not terminal nodes with an antenna for receiving signals from a base station and/or repeater.

Claims 1 and 19 also recite that “a module for interference management and sector reuse comprising network management of frequency, time, and directionality.” The Office Action alleged that module recited in the present claims reads on the equalizer disclosed in Kay. Kay teaches that inter-symbol interference can be minimized using an equalizer. See Col. 3, lines 54-55. Kay also discloses that an element manager system of the central office includes an element manager which performs off-the-network management functionality. See Col. 15, lines 43-46. Col. 74, line 61-Col. 75, line 6 of Kay teach that the element manager switches to a backup hub terminal in case of failure. Kay further teaches that the antennas of the outdoor units of the hub terminals have reduced or low level sidelobes so as to transmit the narrow beam without causing interference with alternate sectors using the same frequency. See Col. 17, lines 8-23 of Kay. None of the sections of Kay cited in this paragraph teaches or suggests “a module for interference management and sector reuse comprising network management of frequency, time, and directionality,” as recited in claims 1 and 19. While some elements of Kay do perform network management functions, these functions are not the same as those recited in claims 1 and 19.

The Office Action also alleged that Col. 2, lines 62-65 and Col. 3, lines 16-21 of Bandeira discloses “management of frequency, time, and directionality.” These sections of

Bandeira merely disclose the use of frequency, time and directional diversity. Using frequency time, and directional diversity, as disclosed in Bandeira, is not the same as “network management of frequency, time, and directionality.” There is no discussion or suggestion in Bandeira of “a module for interference management and sector reuse comprising network management of frequency, time, and directionality,” as recited in claims 1 and 19.

Combining the mere use of these features, as disclosed in Bandeira, with the various network management features disclosed in Kay is clearly improper. Kay merely teaches minimizing interference with an equalizer or antennas with low level sidelobes. Kay also teaches an element manager that performs network management functions, in particular backup functions. Neither the equalizer nor element manager of Kay is “a module for interference management and sector reuse,” as the Office Action seems to allege. In Kay, interference is minimized by the use of certain components. However, Kay does not teach or suggest a specific module for management of interference or sector reuse. One skilled in the art combining the teachings of Bandeira and Kay would obtain a system that uses frequency, time and directional diversity and that minimizes interference by using certain components, for example, equalizer or antennas with low level sidelobes. One skilled in the art would not obtain “a module for interference management and sector reuse comprising network management of frequency, time, and directionality,” as recited in claims 1 and 19.

Therefore, Applicants assert that the combination of Majidi-Ahy, Kay and Bandeira fails to teach or suggest each of the elements recited in claims 1 and 19. Each of claims 2-4, 7 and 12-18 and depends on claim 1 and therefore incorporates all of the elements of claim 1, in addition to the further limitations recited in claims 2-4, 7 and 12-18. Therefore, Applicants respectfully request that this rejection of claims 1-4, 7 and 12-18 under 35 U.S.C. §103 be withdrawn.

Claims 5 and 6 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Majidi-Ahy, in view of Kay, further in view of Bandeira as applied to claim 1, and in further view of U.S. Patent No. 5,809,431 to Bustamante et al. (hereinafter “Bustamante”). Claims 8-11 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Majidi-Ahy, in view of Kay,

further in view of Bandeira as applied to claims 1 and 7, and in further view of U.S. Patent No. 6,973,312 to Ngan et al. (hereinafter “Ngan”). These rejections are respectfully traversed.

Neither Bustamante nor Ngan cures any of the deficiencies of the combination of Majidi-Ahy, Kay and Bandeira. In particular, Bustamante and/or Ngan fail to teach or suggest that “each sector comprising of a plurality of terminal nodes, said terminal nodes comprising both indoor terminal nodes and outdoor terminal nodes, and comprising a plurality of outdoor repeaters, wherein each of the plurality of terminal nodes comprises an antenna,” as recited in claim 1, upon which claims 5-6 and 8-11 depend. Bustamante and Ngan also fails to teach or suggest “a module for interference management and sector reuse comprising network management of frequency, time, and directionality,” as recited in claim 1, upon which claims 5-6 and 8-11 depend. Therefore, Applicants respectfully request that the rejections of claims 5-6 and 8-11 under 35 U.S.C. §103 be withdrawn.

#### **Disclaimer**

Applicants may not have presented all possible arguments or have refuted the characterizations of either the claims or the prior art as found in the Office Action. However, the lack of such arguments or refutations is not intended to act as a waiver of such arguments or as concurrence with such characterizations.

**CONCLUSION**

In view of the above, consideration and allowance are respectfully solicited.

In the event the Examiner believes an interview might serve in any way to advance the prosecution of this application, the undersigned is available at the telephone number noted below.

The Office is authorized to charge any necessary fees to Deposit Account No. 22-0185.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 22-0185, under Order No. 27592-00912-US from which the undersigned is authorized to draw.

Dated: November 13, 2008

Respectfully submitted,

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